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USSR Report

HUMAN RESOURCES

(FOUO 5/81)



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TAJIK POPULATION DYNAMICS STATISTICS

Dushanbe IZVESTIYA AKADEMII NAUK TADZHIKSKOY SSR OTDELENIYE OBSHCHESTVENNYKH NAUK
in Russian No 4, Oct-Dec 80 pp 72-76

[Article by A. Madzhidov, USSR Gosplan Council for the Study of Productive Forces:
"Tajik SSR Population Distribution and Labor Resources Use"]

[Text] Territorial population distribution and labor resources use are among the most important national economic problems and directly influence the rates and proportions of economic development and the basic directions in which the economic effectiveness of social production is increased.

This problem takes on special significance in Tajikistan, where the population increment is the highest in the country.

Table 1. Dynamics of USSR and TaSSR Population for 1940-1978 (compiled from data in: "Narodnoye khozyaystvo SSSR v 1977 g." [USSR National Economy in 1977], Moscow, "Statistika" Izd-vo, 1978, pp 10-11)

year	USSR			TaSSR		
	total population (in millions)	including: urban rural (in percent)		total population (in millions)	including: urban rural (in percent)	
1940	194.1	33	67	1.525	19	81
1959	208.8	48	52	1.980	33	67
1970	241.7	56	44	2.899	37	63
1978	260.0	62	38	3.691	35	65

Thus, whereas the 1978 population for the USSR as a whole was 33.9 percent greater in 1978 than in 1940, it was 142.0 percent greater for Tajikistan. In 1940, the republic population was 0.8 percent of the national total, in 1959 -- 0.9 percent, in 1970 -- 1.2 percent and in 1978 -- 1.4 percent.

As distinct from other Union republics and regions of the country, both the urban and rural population are growing in Tajikistan. From 1940 through 1978, the total republic population increased 2.3-fold, while the urban population increased 4.4-fold and the rural population increased 1.9-fold.

The proportion of rural population in Tajikistan is one of the highest in the country, 65 percent in 1978. From 1940 through 1978, the rural population proportion decreased

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16 percent in the republic and 29.4 percent in the country as a whole (see: "Narodnoye khozyaystvo SSSR v 1977 g.," Moscow, "Statistika," 1978).

The rapid growth in republic population is to be explained by various factors, primary among which are demographic features. The main reason for change in natural population increment as a whole and labor resources in particular is the birth rate. Whereas an unfavorable demographic situation associated foremost with a significant lowering of the birth rate has evolved in the country as a whole, a high birth rate has been retained in Tajikistan. The birth rate per 1,000 people in the republic has increased from 30.6 in 1940 to 38.2 in 1976, while this indicator decreased from 31.2 to 18.4 in the country as a whole.¹

The formation of labor resources depends largely on the birth rate. The dissimilar urban and rural able-bodied populations result in considerable measure from the different birth rates. More than half the total able-bodied population is concentrated in rural areas, which is one source for the formation of manpower.

The high growth in the Tajik population has facilitated rapid labor resources reproduction and has had a large impact on the nature, direction and rates of development of branches of the national economy, on deepening specialization in labor-intensive branches. All this has necessitated the efficient distribution of the population within the republic and the planned shifting of labor resources between individual regions.

Population distribution and its efficient deployment within our country are determined by both the general and local specifics of its economic development. Population distribution depends on many factors, among which natural factors, features of historical development and socioeconomic conditions are the most important.

Natural conditions are the natural basis for developing production and distributing population within the country. In Tajikistan, an oasis and mountain type of settlement has evolved under the influence of natural conditions, the rural population basically being concentrated around water sources, for example. The bulk of the rural settlements are concentrated in valley regions. Extensive mountain areas are sparsely settled, however. The population there is scattered.

The territorial distribution of the TaSSR population has its own specific features resulting from the historical conditions under which the economy was shaped and the population grew prior to and after the October Revolution. Since the basic occupation in prerevolutionary Tajikistan was farming, population distribution depended on sources of water.

With its arid climate, it was proximity to natural and artificial water sources that basically determined population distribution in Tajikistan. Republic population density can be seen in Table 2 (following page).

In connection with the high rates of population growth, republic population density has increased significantly faster than for the country as a whole. Whereas national average population density increased 12.5 percent during 1959-1978, the increase in Tajikistan was 20 percent.

1. "Narodnoye khozyaystvo SSSR za 60 let" [Sixty Years of the USSR National Economy], Moscow, "Statistika" Izd-vo, 1977, p 72.

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Table 2. Dynamics of USSR and TaSSR Population Distribution Change (compiled from data in: "Narodnoye khozyaystvo SSSR v 1977 g.," pp 10-11)

year	USSR		TaSSR	
	total population (in thousands)	population density	total population (in thousands)	population density
1959	208,827	9.3	1,981	13.8
1970	241,720	10.7	2,899	20.3
1975	253,261	11.4	3,387	23.7
1978	260,040	11.7	3,691	25.8

Tajikistan has its own specific natural and economic features which are manifested in its geographic position, the natural-economic prerequisites for shaping and developing the economy, its structure and direction, and opportunities for further developing productive forces. At present, the TaSSR is divided into seven natural-economic zones: Northern, Zeravshanskiy, Gissarskiy, Vakhshskiy, Kulyabskiy, Garmskiy and Gorno-Badakhshanskaya AO.

As a consequence of differences in soil-climate, terrain and other conditions, the republic population distribution and density is characterized by great unevenness. The population is concentrated basically in the valley regions of irrigation farming, which are distinguished by high economic utilization of the territory, and also in regions with a high level of development of industrial branches of the national economy (see Table 3).

Table 3. Distribution and Density of TaSSR Population by Zone as of 1 January 1978 (table calculated from USSR Central Statistical Administration data)

zone	in percent of all republic territory	population size			density
		in percent of total republic population	urban (percent)	rural (percent)	
Gissarskiy	8.3	29.9	51.8	48.2	92.9
Vakhshskiy	8.0	18.9	23.1	76.9	61
Kulyabskiy	9.0	11.5	26.1	73.9	33.1
Northern	11.5	27.8	39.4	60.6	62.4
Zeravshanskiy	6.2	4.0	12.2	87.8	16.5
Garmskiy	12.0	2.7	8.0	92.0	5.8
GBAO	45.0	3.3	13.3	86.7	1.2

The most densely populated region of Tajikistan is the Gissarskiy zone. Some 29.9 percent of the republic population is concentrated here, while it contains only 8.3 percent of the republic territory. Average population density in Gissarskiy zone is 92.9 people, 3.6 times more than the republic average. Northern and Vakhshskiy zones are also characterized by relatively high density. For example, 2.3-fold more people live per square kilometer in Northern zone than the TaSSR average. Thus, 89.7 percent of the Tajikistan population lives in valley regions comprising 36.5 percent of the republic territory. Ten percent of the population live in the mountain and foothill regions (GBAO, Garmskiy and Zeravshanskiy zones), which comprise 63.2 percent of the total area of Tajikistan.

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The distribution of population and labor resources depend directly on development of the national economy. Spatial development of the economy and the specialization and diversity of regional economies are determined in considerable measure by the nature of population and labor resources distribution, by their concentration in various regions.

The primary cause of territorial shifts in population distribution nationally has been industrialization of the economy. The development of industrial production is the economic basis of urbanization.

The proportions of TaSSR urban and rural populations in 1978 were 35 and 65 percent, respectively, while nationally they were 62 and 38 percent.¹

The republic's urban network is still in the formation stage. The basic category of cities is small and medium-sized (20,000 to 50,000) and urban-type settlements. More than half the republic urban population lives in such settlements.

According to census results, Tajikistan had 61 urban population centers in 1970 (with a population of 1,076,700), including two large cities (477,100), seven medium-sized cities (204,000), nine small cities (108,300) and 43 urban-type settlements (287,200).²

Urban settlements are distributed unevenly within the republic. Nine of the 18 cities are in the Northern zone, four are in Gissarskiy zone, and Kulyabskiy zone and the GBAO each have one city.

Small and medium-sized cities are still characterized by a relatively low level of industrial development. The predominance of small urban settlements with poorly developed industry in the republic restricts opportunities for drawing the unemployed population into social production. Labor resources are growing here considerably faster than the number of jobs in industry. In medium-sized and small cities, the number of branches of industry is limited. In a majority of such cities, there are only enterprises of light and food industry.

Accelerated economic development of the republic has led to the formation of industrial centers and to the creation of new cities. Thus, 17 urban-type settlements and four new cities were created in the TaSSR during 1959-1977; the urban population increased 2.1-fold. Changes in the proportions between the urban and rural populations in the republic reflect the level of development of productive forces and the economic structure in the republic. During 1959-1978, the proportion of the TaSSR rural population decreased from 67 to 65 percent. However, the absolute number of rural residents increased by 1,055,500, while it decreased by 10,618,000 nationally.

The distribution of the TaSSR rural population has its own distinguishing features. According to census data, the republic had 3,908 rural population centers with a total population of 1,822,900 in 1970. The largest number of population centers was accounted for by the groups with 201 to 500 people and 501 to 1,000 people, in which 19.9 and 27.4 percent of the total republic rural population live. Consequently,

1. "Narodnoye khozyaystvo SSSR v 1977 g.," p 7.

2. "Itogi Vsesoyuznoy perepisi naseleniya SSSR v 1970 g." [1970 USSR All-Union Census Results], Vol 1, Moscow, "Statistika" Izd-vo, 1972, p 73.

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about half the Tajikistan rural population lives in these two groups of settlements. Population centers with up to 200 people are characteristic of the republic. They comprise 42.9 percent of all rural settlements, although 8.0 percent of the population live in them. The groupings of population centers shows that rural settlements with up to 200 residents, located basically in the mountain regions, predominate in the republic. The relatively large population centers are generally concentrated in the densely-populated valley regions. Herever, here, too, there are relatively numerous villages with large populations.

At present, small population centers are being consolidated and transformed into urban-type settlements, with a view towards improving the living conditions of the population. In 1970, the number of republic rural population centers had decreased by 962 as compared with 1959.

However, the process of concentrating and consolidating republic population centers has occurred very slowly. The most widespread form of settlement continues to be the small kishlaks, which retards the development of productive forces and delays the process of concentrating agricultural production.

The main directions of population distribution in Tajikistan are determined in large measure by the utilization of broad expanses of mountain and foothill land to increase the production of valuable agricultural crops such as cotton, vegetables, fruit and grapes, and stockraising output, by the involvement of mineral deposits in economic circulation, and also be the accelerated development of industrial branches, especially those important to developing cities. Republic population distribution is determined largely by the involvement of rapidly growing labor resources in social production. The unevenness in production and population distribution within the region will gradually be overcome in this manner.

In order to increase employment in the small and medium-sized cities and urban-type settlements, branches of large enterprises should be located there. In order to draw labor resources into social production, we need to define ways of using them more effectively in various types of urban and rural population centers.

Along with the demographic features noted above, the high proportion of those employed in agriculture testifies to republic reserves for freeing manpower. The development of industry, improvement in the forms of agricultural organization and management, development of a system of measures to reduce the seasonal nature of labor in branches of the agroindustrial complex and developing the services sphere facilitate reaching this goal. In this connection, rural population centers are being consolidated by concentrating small enterprises based on processing agricultural output; rural population centers are being transformed into urban settlements.

The development of cities and increasing the rates of urbanization in the republic are helping to draw the rapidly growing labor resources into social production.

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CRITERIA FOR FORMING, USING INCENTIVE FUNDS EXPLORED

Moscow VOPROSY EKONOMIKI in Russian No 6, Jun 81 pp 41-49

[Article by A. Akhmeduev: "The Material Incentive Fund"]

[Text] The 26th CPSU Congress Congress posed the task of continuing the improvement of the material incentive system with regard to the concrete contribution of each labor collective and individual workman to the result. We believe that the improvement of the procedure for forming the material incentive fund occupies an important place in the realization of this task. The strengthening of its stimulating influence on the growth of production demands that the size of this fund be closely linked to the end results of the activity of associations and enterprises, to the tautness of their plans, and to the degree of their fulfillment.

The system for forming the material incentive fund under the 9th and 10th five-year plans did not secure such dependence in full measure. Thus, the Basic Principles Governing the Formation and Expenditure of Incentive Funds*, in fixing the planned size of the material incentive fund, favored associations and enterprises that adopted taut plant targets, including targets of improving product quality, that used productive capital more effectively, that brought capacities and new equipment up to standard in a shorter period of time, that realized higher growth rates of labor productivity, etc. However, during the years of the five-year plan, the planned size of the given fund was determined without regard to the end results of the activity of economic links, and the level and rate of their growth.

The size of the incentive funds was differentiated primarily by adjusting their planned size depending on the fulfillment of the annual plan and five-year plan targets based on fund-forming indicators. However, experience has shown that such differentiation of payments to the material incentive fund is justified if its planned size is fixed with due regard to the tautness of five-year plan indicators. Otherwise, economic links that dispose over production reserves not

*Basic Principles Governing the Formation and Expenditure of the Material Incentive Fund and the Fund for Sociocultural Measures and Housing Construction in 1971-1975 (EKONOMICHESKAYA GAZETA, No 23, 1972, pp 15-16); Basic Principles Governing the Formation and Expenditure of the Material Incentive Fund and the Fund for Sociocultural Measures and Housing Construction in 1976-1980 in Production Associations (Combines), at Enterprises and in Organizations in Industry Converted to the New System of Planning and Economic Incentives (EKONOMICHESKAYA GAZETA, No 50, 1976, pp 11-14).

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considered in the five-year plan will be placed in a more favorable economic position in that they will have the opportunity to significantly increase their contributions to material incentive funds as a result of the adoption of annual counter-plans that exceed five-year plan targets, and by surpassing the indicators of their one-year plans.

All this injected an egalitarian element into the system governing the formation of the material incentive fund, which did not sufficiently motivate associations and enterprises to adopt and fulfill taut plans. The result was an insufficiently close relationship between the resources utilized from the material incentive fund and indicators of the effectiveness of social production. Between 1971 and 1979, resources expended from this fund increased 1.7 fold, labor productivity rose 1.5 fold, and the output-capital ratio declined. The material incentive fund as a whole and the material incentive fund per industrial production worker in the 9th Five-Year Plan increased at a more rapid rate than output and labor productivity. Under the 10th Five-Year Plan, to the contrary, given a 20 percent increase in output and a 14 percent increase in labor productivity, the material incentive fund increased by 12.2 percent and payments from the material incentive fund per worker rose by a mere 5 percent*.

The establishment of a close relationship between the size of the material incentive funds and the performance of associations and enterprises depends first and foremost on the improvement of the system underlying the formation of these funds--a system that is based on the objective evaluation of the performance of an economic link and the determination of the reward appropriate to this performance.

We believe that the evaluation of the five-year plan of economic links with due regard to the correspondence of plan indicators to the needs of society and long-range targets in the economic and social development of the national economy must become a necessary element in the system governing the formation of the material incentive fund and the basis for the differentiation of its planned magnitude. Therefore the establishment of the planned size of the material incentive fund corresponding to five-year plan indicators with due regard to the degree of satisfaction of the national economy's requirements and the evaluation of the tautness of these indicators would be an important direction in improving the system governing the formation of this fund.

The guidelines approved by USSR Gosplan for determining the tautness of plans** call for the evaluation of the 5-year and 1-year plans of associations and enterprises according to the degree to which the plans conform to (approximate) normative demands. According to these guidelines, a plan is considered taut when it ensures the fulfillment of the established targets and the rational use of production capacities and expenditures of material, labor, financial and other resources at the normative level. The evaluation of the plan in comparison with the normative level will promote the rational use of resources if this level of indicators is established on the basis of progressive scientifically substantiated technico-economic norms. This fundamentally important point is considered in the new document.

*Calculated on the basis of the statistical yearbook "Narodnoye Khozyaystvo SSSR v 1979 g." [The USSR National Economy in 1979], Izdatel'stvo "Statistika," 1980, pp 134, 147, 149, 150, 550.

**See "Sovershenstvovaniye khozyaystvennogo mekhanizma. Sbornik dokumentov" [Improving the Economic Mechanism. Collected Documents], Izdatel'stvo "Pravda," 1980, pp 37-39.

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However, the principles specified in the Guidelines for Determining the Tautness of Plans were not fully taken into account in the process of forming incentive funds under the Eleventh Five-Year Plan. The point is that the planned size of the material incentive fund under the 11th Five-Year Plan is determined on the basis of norms (differentiated for the various years of the five-year plan) computed on the basis of fund-forming indicators and the sum of the fund, which are adopted in calculations of the control figures for the five-year plan*. The material incentive fund envisaged in the control figures is corrected depending on the deviation of fund-forming indicators of draft five-year plans from analagous indicators in the control figures. When ministries, associations and enterprises draft a five-year plan whose targets are higher than the control figures, the size of the incentive funds is increased and when they draft a five-year plan with lower targets, the incentive funds are reduced. Thus the level of the fund-forming indicators in the five-year plan is evaluated on the basis of their correspondence to the control figures for the five-year plan.

The tautness of the plans is evaluated by comparing their indicators with the indicators of the control figures and the differentiation of the planned size of the material incentive fund on this basis is economically substantiated if the control figures take into account the use of resources at the normative level for all enterprises, associations and ministries and if there is equal tautness of indicators corresponding to the control figures. If these conditions are not observed, economic links will be placed in an unequal situation: those that possess reserves for surpassing control figure targets with regard to the fund-forming indicators will have a significantly larger planned material incentive fund than those that establish taut indicators in the control figures.

In order to assure that all economic links have equal economic conditions for forming incentive funds, the indicator obtained by comparing draft plans with the control figures for the five-year plan should be adjusted to take account of the result of the evaluation of the control figures proper. This means that the control figures for the five-year plan and draft plans should be evaluated on the basis of a single criterion. We believe that the comparison of control figures and draft plans with norms governing the effectiveness of social production could constitute such a criterion. Their introduction is envisaged in normative documents.

In accordance with the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing the Effectiveness of Production and Improving Work Quality" (1979), USSR Gosplan approved the Procedure for Devising and Ratifying a System of Norms** which, in addition to the norms ratified in the five-year plan regarding the expenditure of labor, wages, material and energy resources, the use of production capacities; norms governing capital investments, equipment requirements and reserves, and financial norms, also envisage the introduction of norms regarding

*See Basic Principles Governing the Formation and Expenditure of the Material Incentive Fund and the Fund for Sociocultural Measures and Housing Construction (Incentive Funds) in 1981-1985 in Industry ("Sovershenstvovaniye Khozyaystvennogo mekhanizma" [Improving the Economic Mechanism], pp 142-153)].

**See EKONOMICHESKAYA GAZETA, No 10, 1980, pp 11-14.

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the effectiveness of social production. In our opinion, this holds great significance for raising the scientific level of planning and for increasing the effectiveness of economic stimuli and in particular for increasing the stimulating influence of incentive funds on the growth of production.

The point is that the existing norms and norms ratified for the 11th Five-Year Plan extend more to the process of placing resources at the disposal of economic links and much less to the use of these resources. When society allocates fixed and working capital to an economic link and strengthens [it] with material-technical, labor and natural resources, society must determine the normative return on these resources. In our view, such norms must be a most important element in society's monitoring of the complete and effective use of the national economy's resources and together with other norms must comprise the basis of scientifically substantiated planning and economic stimulation of the development of production. Accordingly, the incorporation of norms of effectiveness of social production in national economic planning practice and in the mechanism of economic stimulation is very important and timely.

Proceeding from the aforementioned Procedure for Elaborating and Confirming Norms, it is expedient to determine the economic content, structure and functions of norms of the effectiveness of social production. If we approach the given norms from the standpoint of their role in the formation of incentive funds, they must in our opinion include the normative level of use of production's basic resources and the degree of satisfaction of the need for a given economic link's products of a given quantity and quality. The determination of norms of the degree of satisfaction of the need for resources and the use of resources should be based on the national economy's scientifically substantiated requirement for given types of products and on their production potential. Norms must be oriented toward the long-term development of production, must stimulate the search for resources and the creation of conditions for the growth of production at enterprises whose products are needed by the national economy.

In the structure of normative effectiveness of social production, a major part must be played by the normative degree of satisfaction of society's requirement for products of each economic link which will make it possible to orient the collectives of enterprises and associations toward the elaboration of plans that ensure the more complete satisfaction of the requirements of the national economy and the population. It should be noted that the tautness of plans, which is determined in accordance with the Guidelines on the Procedure for Determining the Tautness of Plans, characterizes the effectiveness of the use of production capacities, equipment, material and labor resources in any given period of time. But in itself the degree of tautness as a relative quantity does not encourage the use of additional resources in production, the technical improvement of existing fixed capital, the replacement of obsolete equipment with new equipment, the modification of structure and the upgrading of the skill level of the work force, etc. As a result of this, the development of production on a higher technical basis, which makes it possible to satisfy the requirements of the national economy more completely, may not be reflected in the higher degree of tautness of the plans.

For this reason, in the elaboration of methods of evaluating plans, we believe it important to use the degree of satisfaction of the requirements of the national

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economy for the output of a given enterprise, production association, all-union production association, and ministry as the major criterion. It is expedient to establish the degree of satisfaction of needs as the ratio of the optimal volume of output to the scientifically substantiated requirement for output which is the determining factor in the specialization of a given economic link.

The requirement for concrete types of products at the normative level must be balanced with production through the determination of concrete production links responsible for such determination, for output of the requisite quantity, mix and quality. This requires knowledge of the requirement for concrete types of products and the normative level of satisfaction of this requirement for each planned period and the measure of responsibility for the nonobservance of this level. This approach will also make it possible to realize the point in the decree on improving the economic mechanism which states that responsibility for the satisfaction of the requirements of the national economy and the population for products of the necessary mix and quality is borne by the ministry that is the head ministry in the production of a given product.

The evaluation of the five-year plan with regard to the degree of satisfaction of the requirements of the national economy will make it possible to determine the material responsibility of each ministry which is the head ministry in the production of a given product and of its production links for providing the national economy and population with products of the necessary assortment and quality since the planned magnitude of the incentive funds of a ministry and its links will to a considerable degree depend on this evaluation. At the same time, the requirements of the national economy and the population will be determined at the level of needs stemming from modern advances in science and technology. The degree of satisfaction of requirements and consequently the evaluation of plan indicators as well will be directly influenced by the scheduled development and production of new types of products. This must promote the material motivation of collectives of enterprises, associations and ministries to accelerate technical progress.

In order to make an objective evaluation of the tautness of plans, it is important to select the basic and additional indicators that in each given period are of decisive importance to the economic link and that at the same time make it possible to characterize its activity more completely. The Guidelines on the Procedure for Determining the Tautness of Plans recommend the use of the following as basic indicators for evaluating five-year and one-year plans: the use of production capacities (areas); labor productivity; the share of output in the highest quality category (or other indicators of product quality); and the enterprise cost of production (profit resulting from the lowering of the enterprise cost of production). If necessary, the system of indicators of plan tautness may also include such indicators as the number of equipment operation shifts, equipment utilization, output-capital ratio (general or active part of capital), materials-output ratio (or expenditures per unit of capacity or labor) as well as indicators that are specific for a given branch or type of production.

During the development and initial years of quantity production, there is frequently a decline in the growth rate of the volume of production, labor productivity, profits, and the utilization of production capacities and an increase in the

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labor-output ratio, capital-output ratio and production costs in general. This can result in the temporary lowering of the tautness coefficient for a number of indicators and to the lowering of the size of the material incentive fund which lessens the motivation of economic links to master the production of new products and to increase the volume of such production. The basic principles governing the formation and expenditure of incentive funds in the 11th Five-Year Plan call for the establishment of higher norms governing contributions to funds for production associations (enterprises) that significantly increase the production of new, highly effective producer goods and new consumer goods.

The realization of this point would facilitate the inclusion of the share of new products in the highest quality category in the overall volume of production among the basic indicators of the evaluation of the tautness of the plans. At the same time, the role of a given indicator should be strengthened in the evaluation of the activity of economic links and in the formation of material incentive funds. It would be expedient to include two product quality indicators in the plan: the share of output in the highest quality category in the total volume of production and the share of new products of the highest quality category in the overall volume of production. Norms should be established on the basis of the same indicators. The share of new products should be calculated in percent as the ratio of the volume of production in the highest quality category mastered in the last three years to the total volume of commodity output.

Since product development and the production of new products during the first few years increase the tautness of production activity and frequently lower the basic indicators of the work of the economic link, we believe that the share of new output should function as a compensatory indicator. In such a case, considerably more weight should be given to the share of new products in total output in comparison with other indicators in the calculation of the overall coefficient of plan tautness. When the share of new products is appropriately reflected in the integral evaluation of the tautness of plans, this will permit economically justified increases in the planned size of the material incentive fund and the establishment of higher normative contributions for production associations and enterprises that plan the development and production of new products.

Normative indicators determined by the method indicated above will be technically and economically substantiated norms of effectiveness of the production of economic links. They may be individual for each enterprise (association) or uniform for a group of enterprises or subbranch and in the case of individual indicators--for the branch as a whole. In our opinion, the evaluation of indicators in the draft five-year plan will be objective when it is made through comparison with production effectiveness norms elaborated and ratified for the five-year plan for each enterprise, association and ministry before work commences on the drafting of the five-year plan. The experience of plan evaluation in Minsel'khormash [Ministry of Tractor and Agricultural Machine Building] and Minelektronprom [Ministry of the Electronics Industry] confirms the practical possibility and expedience of such an approach.

The Basic Principles Governing the Formation and Expenditure of the Material Incentive Fund and the Fund for Sociocultural Measures and Housing Construction in 1981-1985 specify that the planned size of the funds in industry be calculated in two stages on the basis of a system of norms differentiated for individual years

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of the five-year plan which in turn are calculated on the basis of fund-forming indicators and the sum of funds indicated in the control figures for the five-year plan. The magnitude of the control figures for the funds is not linked to the tautness of control figures according to fund-forming figures but, as noted above, is adjusted according to deviations between them and the adopted plan indicators. Under such conditions, there may arise economically unjustified differences in the planned size of funds and in the norms governing their formation. At the same time, stable norms governing the formation of material incentive funds (which are calculated on the basis of adopted planned fund-forming indicators) cannot play an active, stimulating role or motivate enterprises to consider the total utilization of production reserves in the five-year plan. Moreover, the differentiation of norms governing the formation of incentive funds for various years of the five-year plan without regard to the tautness of plan indicators means that enterprises establish rewards of varying magnitude for the attainment of one and the same result during the five-year plan.

We made tentative calculations that indicate that the norms governing the formation of the material incentive fund depending on the dynamics of the growth rate and level of indicators will ceteris paribus differ substantially for various years of the five-year plan (see following table).

	1981	1982	1983	1984	1985
1. Growth of labor productivity in % of plan for 1980.....	103.8	107.8	112.1	116.9	122.2
2. Ditto for year (increment).....	3.8	4.0	4.3	4.8	5.3
3. Share of products in the highest quality category in total output (in %).....	15	18	21	24	26
4. The part of the material incentive fund that is earmarked for the stimulation of each fund- forming indicator (in millions of rubles).....	2.5	2.5	2.5	2.5	2.5
5. Total profits (in millions of rubles).....	50	50	50	50	50
6. Norms governing the formation of material incentive funds (in % of profits):					
(a) for each percentage point of increase in labor productivity (Line 4:2:5X100).....	1.316	1.250	1.163	1.042	0.943
(b) for each percentage point of increase in the share of products in the highest quality category in total output (Line 4:3:5X100).....	0.333	0.278	0.238	0.208	0.192

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As the given example shows, the greater the planned results on the basis of fund-forming indicators, the lesser the significance of the reward relative to profit and hence the lesser the reward for each percentage point of increase in labor productivity and the share of output in the highest quality category in total output. Since differences in the levels and growth rates of indicators at the enterprise may be directly associated with the effectiveness of the activity of the work force, such differentiation of norms for various years of the five-year plan may reduce the dependence of the size of the reward on the performance of the enterprise collective.

In our view, the planned size of the material incentive fund and differentiated norms governing its formation for various years of the five-year plan should be established on the basis of the material incentive fund calculated on the basis of a uniform national economic norm with due regard to the objective evaluation of indicators in the plan of a given year (according to the degree of satisfaction of the requirement for products of a given economic link and the degree of tautness of the plan).

We believe that an important part in the determination of the planned magnitude of incentive funds should be played by the calculated material incentive fund, the magnitude of which should be taken for the basic initial norm governing the formation of funds for all branches. It may be the measure of reward for attaining normative indicators of the effectiveness of production and may be uniform for all ministries and within ministries--for enterprises and associations. We agree with those economists who propose that the initial calculated magnitude of funds and the norms governing their formation be based on a single magnitude for all branches and that this magnitude be differentiated depending on the tautness of the plans and the results of economic activity*.

The calculated material incentive fund and the corresponding initial norm should be determined in percent of the wage fund on the basis of national economic proportions adopted in the five-year plan between the size of the material incentive fund and the size of the wage fund with due regard to the share of the wages of engineering-technical personnel and blue-collar workers in the latter. Such an approach will make it possible to establish and maintain planned proportions between the incentive fund and the wage fund. The normative calculated fund like the normative effectiveness of production should be determined and communicated to ministries, associations and enterprises before work begins on the drafting of the five-year plan.

The ratification of the normative effectiveness of production and the normative calculated material incentive fund for economic links will make it possible to create a more effective mechanism for forming incentive funds. The following sequence can be proposed for the development of this mechanism.

*See, for example, A. I. Milyukov, "Pooshchritel'nyye fondy na predpriyatii (Problemy obrazovaniya i ispol'zovaniya)" [Incentive Funds at the Enterprise (Problems in Their Formation and Use)], Izdatel'stvo "Ekonomika," 1974, p. 113; G. M. Siluanov, "Metody stimulirovaniya povysheniya effektivnosti proizvodstva" [Methods of Stimulating the Increased Effectiveness of Production], Izdatel'stvo "Finansy," 1976, p. 29.

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Ministries, associations and enterprises whose five-year plan indicators correspond to the established norms of production effectiveness must articulate planned material incentive funds in the volume of the calculated fund, i. e., the established normative percentage of the planned wage fund.

Since the attainment of normative indicators of the degree of satisfaction of requirements and tautness of plans is equal to the normative magnitude of the contribution of each economic link to social production and to national income, the sum of the reward in the amount of a uniform norm for the national economy must correspond to this contribution. An increase (decrease) in plan indicators compared with normative indicators means an increase (decrease) in the actual contribution to social production, which must be properly reflected in the planned size of the material incentive fund. Therefore, if the indicators adopted on the basis of the five-year plan deviate from the normative effectiveness of production, it is necessary to correct the normative calculated fund and the planned material incentive fund in comparison with the calculated volume accordingly.

The comparison of plan indicators with normative indicators makes it possible to determine particular coefficients on the basis of indicators and integral coefficients for evaluating five-year and one-year plans which should be used as the basis for correcting the normative calculated material incentive fund. The norms derived as a result of the corrections will be norms used to determine the planned material incentive fund of a ministry, association and enterprise for various years of the five-year plan. Then it is necessary to establish stable norms on the basis of fund-forming indicators. The planned material incentive fund should be determined for various years of the five-year plan on the basis of the planned norm and planned wage fund with regard to the share of the wages of engineering-technical personnel and white-collar workers in the total wage fund. It should be distributed into the appropriate shares that form on the basis of each fund-forming indicator and stable norms for the formation of the fund based on an individual indicator should be determined accordingly.

The substantiation of stable norms and the formation of the material incentive fund in the course of a five-year plan depend on the correlation in which the planned material incentive fund is divided by each indicator for the calculation of norms. A more precise approach and substantiation are required here. For example, the division of the material incentive fund into two equal parts (50 percent for the growth of labor productivity and 50 percent for quality) may in a number of cases result in unjust differences in norms and actual size of material incentive funds from one enterprise to another. This stems primarily from the fact that the quality indicator (the share of products in the highest quality category from enterprise to enterprise) fluctuates within a substantial range. Thus the formation of 50 percent of the incentive fund on the basis of the share of output in the highest quality category at an enterprise where this indicator is 1-2 percent and at an enterprise where it is 95 percent or higher is evidently without economic justification.

In our view, the substantiation of norms can be increased if the planned material incentive fund is divided into two parts and if we determine the share of products in the highest quality category in total output in order to calculate the normative quality indicator. For example, let us say that 25 percent of the enterprise's output is in the highest quality category. The material incentive fund should be divided between the share of output in the highest quality category and the growth of labor productivity in a proportion of 1:3. At the same time, it is advisable that a permissible share in the fund between 10 and 60 percent, for example, be established for the product quality indicator. Since a considerable part of the

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material incentive fund falls to the share of the labor productivity indicator in the event the share of output in the highest quality category is small, norms governing additional contributions for overfulfillment and reduction norms for underfulfillment of the given indicator must be established with due regard to this circumstance. Thus the planned material incentive fund is divided into parts that form on the basis of each of the fund-forming indicators that must be the basis for determining stable norms governing contributions based on fund-forming indicators for various years of the five-year plan.

According to the methods proposed by us, the calculated size of the material incentive fund for a five-year period and for the various years of the five-year plan will depend on this fund's single initial norm, on the size of the wage fund and the share of wages of engineering-technical personnel and white-collar workers in the wage fund, which will ensure equal "starting" conditions for enterprises in all branches of industry. As already noted, the uniform calculated size of the fund is differentiated depending on the evaluation of the level of indicators for various years of the five-year plan according to the degree of satisfaction of needs and the tautness of basic plan indicators. The size of the fund will subsequently differentiated for various years of the five-year plan depending on the growth rates and level of fund-forming indicators and the planned volume of profit for the corresponding year. This will orient enterprises, associations and ministries toward the maximum satisfaction of the needs of the national economy for their products, toward the effective use of modern advances of science and technology and all production reserves in production, and toward the adoption and fulfillment of taut five-year plans.

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NORTHERN OB' RIVER REGION'S CHANGING MANPOWER SUPPLY ANALYZED

Moscow IZVESTIYA VSESOYUZNOGO GEOGRAFICHESKOGO OBSHCHESTVA in Russian No 2,
Mar-Apr 81 pp 130-136

[Article by S. Ye. Mozgalin: "Some Problems in the Formation of Population and Labor Resources in the Northern Ob' River Region"]

[Text] One of the major aspects of the development and distribution of productive forces in the USSR in accordance with CPSU economic strategy is the extensive use of the natural resources of underdeveloped regions. An important part of this work will be the development of oil and gas resources in West Siberia, where a massive territorial production complex is being established in the north ([1], p 226).

Economic construction in this region¹ is being conducted in little-explored territory. During the initial stages of its exploration, the area was almost unpopulated. Now it has a fairly large population and the settlement patterns have essentially taken on distinct outlines and centers. The experience in the settlement and formation of manpower resources in this region has been unique; in terms of scales and speed, it is unparalleled in Soviet and foreign practice. It is also interesting because the population of the northern part of West Siberia, although essentially new, is nonetheless settling in the territory that has been populated for a long time and was extensively explored by minor northern ethnic groups.

The development of the oil and gas resources of Tyumenskaya and Tomskaya Oblasts coincided almost exactly with the interval between the population censuses of 1959 and 1979. In these 20 years radical changes took place in the scales, structure and settlement patterns of the population (see tables 1 and 2).

When the extensive development of the region's natural resources began, nine-tenths of its entire population was concentrated in its southern half. By that time there was a fairly large population here (Table 2) and nine cities (two of which could be classified as large cities). The scales of the subregion's industrial development were not great and the level of urbanization was low: Due to the small number of cities, there were no settlements of the urban type, the urban population represented less than 40 percent of the total and there was no urban population whatsoever in the majority of administrative zones. Rural population density in farming areas was 2-4 persons per square kilometer, or close to the average indicator of the West Siberian steppe and forest steppe zones.

1. The definitive name for this region has not been specified in scientific literature, but the one we use is employed most often.

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In 1959 only 10 percent of the population lived in the northern subregion, including 7.6 percent of the total urban population, which was concentrated in the centers of the national districts. The rural population was confined to river valleys (the new population, primarily Russian) and the traditional pasture lands, cattle drives and hunting grounds (the native population). The industrial development of natural resources had a significant effect on the size, structure and settlement patterns of the southern subregion's population and radically changed the population in the north.

In the south these changes were primarily of a quantitative nature. They resulted from this subregion's evolution into the center of oil and gas resource development in the northern Ob' zone. Here the urban population and oblast centers grew, particularly Tyumen'. The absolute size of the rural population decreased somewhat.

Table 1

Dynamics of Territorial Population Structure in Ob'-Irtys' Region, %
P o p u l a t i o n

Region	Territory	Total		Urban		Rural	
		1959	1979	1959	1979	1959	1979
Entire Ob'-Irtys' region	100	100	100	100	100	100	100
Breakdown:							
Southern subregion	25.7	89.9	73.6	92.4	69.4	88.4	80.6
Tomskaya Oblast	18.1	40.6	31.5	50.9	33.0	34.5	28.8
Southern Tyumenskaya Oblast	7.6	49.3	42.1	41.5	36.4	53.9	51.8
Northern subregion	74.3	10.1	26.4	7.6	30.6	11.6	19.4
Khanty-Mansiyskiy Autonomous Okrug	31.4	6.7	20.7	4.6	25.9	8.0	11.0
Yamalo-Nenetskiy Autonomous Okrug	42.9	3.4	5.7	3.0	4.7	3.6	8.4

Fundamental qualitative changes took place during this time in the northern subregion. An urban network sprang up here--it has not evolved into a system as yet, and all of its future links have not yet come into being, but this is already an obvious territorial network of urban settlements. There are 28 urban settlements within this subregion (22 of them founded after 1960), including Surgut, which has not only become an important regional organizational and economic center of new development [7], but also the first large city in this vast territory.

Between 1959 and 1979 the population of the Khanty-Mansiyskiy Autonomous Okrug increased 13.3-fold and that of Yamalo-Nenetskiy Okrug increased 3.7-fold. The differences in the population growth rates were connected with the scales and priorities of natural resource development: The oil and gas deposits of the Khanty-Mansiyskiy Autonomous Okrug were developed first because they were situated more conveniently in the economic and geographic sense. The development and, consequently, the settlement of the Yamalo-Nenetskiy Autonomous Okrug did not speed up until the 1970's.

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Table 2

Changes in the Size of the Ob'-Irtys' Population in 1959-1979

Region	Territory, thousands of sq km	Density, persons per sq km		Population, in thousands		1979 population, in % of 1959		Percentage of urbanites 1959 1979
		1959	1979	Total 1959 1979	Urban 1959 1979	Total Urban	Rural	
Entire Ob'-Irtys' Region	1752	1.05	1.49	1839 2753	707 1717	1133 1036	149.7 242.8	91.4 38 62
Breakdown:								
Southern subregion	451	3.67	4.49	1653 2026	652 1191	1001 835	122.6 182.7	83.5 39 59
Tomskaya Oblast	317	2.35	2.73	747 866	360 567	387 299	115.9 157.5	77.3 48 65
Southern Tyumenskaya Oblast	134	6.76	7.65	906 1160	292 624	614 536	128.0 213.7	87.3 32 54
Northern subregion	1301	0.14	0.54	186 727	55 526	132 201	3.9- fold 9.5- fold	153.5 30 72
Khanty-Mansiyskiy Autonomous Okrug	551	0.23	1.03	124 569	33 446	91 123	4.6- fold 13.3- fold	136.0 27 78
Yamalo-Nenetskiy Autonomous Okrug	750	0.08	0.21	62 158	22 80	41 78	2.5- fold 3.7- fold	192.5 25 51

Sources: "Itogi Vsesoyuznoy perepisi naseleniya 1959 g. RSFSR" [Results of the 1959 Population Census. RSFSR], Moscow, Gosstatizdat, 1963; "Naseleniye SSSR. Po dannym Vsesoyuznoy perepisi naseleniya 1979 g." [The Population of the USSR. Calculated According to the Data of the 1959 All-Union Population Census], Moscow, Politizdat, 1980.

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The industrial development of the territory of both okrugs brought about the rapid growth of the urban population. The need to conduct exploratory work and build linear facilities, however, led to the relatively rapid growth of the rural population as well (Table 2). The ethnic composition of the population of both districts changed: Northern ethnic groups accounted for a lower percentage (particularly in cities) while Russians, Ukrainians and Belorussians accounted for a higher one. In connection with the specific economic specialty of this subregion, representatives of all union and autonomous republics in the nation took an active part in its development, and the groups from Azerbaijan, Tatariya and Bashkiriya were particularly large.

The development of the northern Ob' region radically changed the social structure. The corresponding data of the 1979 census have not been published as yet, but a comparison of the information taken from the 1959 and 1970 censuses and numerous surveys conducted in the subregion indicates the basic trends.

A change in demographic patterns is characteristic of the entire region and, in particular, of the northern subregion: The oldest and youngest age groups are decreasing in size, the working-age groups are growing younger and men account for a higher percentage of the working-age population, particularly men over the age of 29 (this is due to the fact that women between the ages of 18 and 29 are more often involved in migration and are more likely to stay in new regions).

There is another tendency toward a change in the employment structure. The relative number of persons employed in industry, construction and transportation is constantly rising in the Ob'-Irtysk region as a whole, and the relative number of persons employed in the non-production sphere began to rise at a more rapid rate in the 1970's. In the southern subregion the rise in the relative number of industrial workers has been particularly rapid, especially in the processing branches. In the northern subregion the absolute and relative numbers of persons employed in industry are rising, but more slowly than in the southern part of the region. This is a result of the present massive scale of construction work in the northern Ob' zone. Construction is the leading element in this subregion's employment structure. The northern subregion is also distinguished by a relatively high number of persons employed in transportation, which is typical of the initial stages of development.

In comparison to the new settlements, the oil and gas regions in the northern Ob' zone are distinguished by the need to constantly exploit more and more new deposits [2]. For this reason, the initial stage of development will continue here in the foreseeable future and, consequently, there will be a high relative number of persons employed in construction and transportation. This will preserve the above-mentioned features of the sex and age structure of the population for a long time.

Changes in the size and structure of the population of the Ob'-Irtysk region are the result of the rapid rise in the demand for manpower and are connected primarily with the recruitment of people from outside the region. In the southern part of the region, the high rates of economic construction have created certain difficulties in the recruitment and maintenance of a labor force (the shortage of comfortable housing, the underdevelopment of the public service sphere, long delays in the satisfaction of demand and so forth). On the whole, however, the natural and socioeconomic conditions here are typical of developed regions in West Siberia.

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Therefore, the problems connected with finding manpower for the southern subregion are neither distinctive nor particularly acute, in our opinion. In other words, we do not feel that they call for any kind of special approach.

The situation is different in the northern Ob' areas: The low level of economic development has created several local problems in satisfying the demand for manpower. Additional local problems are connected with the region's specialization in the oil and gas industry. On the whole, to provide the northern Ob' region with manpower, it will be necessary to not only recruit workers for the region but also to keep them here.

The recruitment of manpower for the northern Ob' region must be examined in its following basic aspects.

1. The quantitative aspect: The extensive nature of development calls for the recruitment of huge numbers of workers. Besides this, the unfavorable natural and socioeconomic conditions here require additional manpower for the public service sphere [4]. In all, the development of oil and gas resources in the northern Ob' region will necessitate the recruitment of hundreds of thousands of workers.
2. The qualitative aspect: The northern Ob' region has specific manpower requirements. Just as any other region of new development (particularly those with a severe climate), it will require more young men. But the region also needs many qualified personnel. This is connected, firstly, with the need for intensification in all types of economic activity to minimize expenditures of living labor and, secondly, with the great variety of economic activities that will be conducted here on a sizeable scale.²
3. The geographic aspect: Different parts of the northern Ob' region are on different levels of economic development [3]. Territorial production complexes are already taking shape in some parts (ancillary and service branches and a relatively developed public service sphere already exist in addition to the extractive industry). Oil and gas fields in other areas require the minimum production and social infrastructure. In still other areas the construction of industrial facilities and linear units plays the main role. In a fourth category the territory and mineral resources are only being studied. Each stage makes specific demands on personnel and determines the need for manpower.

2. It would be impossible to list all of them here. We will list just the main "blocks": 1) exploratory work, connected not only with the prospecting of new deposits, but also with the establishment of oil fields and other industrial facilities, supply lines and cities; 2) various types of construction (including a high percentage of pipeline and oil field construction projects); 3) oil and gas extraction; 4) other types of industrial activity (including logging); 5) all types of transport (with a higher percentage of motor and air transport); 6) public services; 7) research, planning and design. In different parts of the northern Ob' region these types of activity will be combined in different ways, but on the whole they create a greater demand for personnel in a broad variety of professions and specialties.

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In the northern Ob' region the problem of keeping manpower is particularly acute. Manpower must be recruited on a massive scale, the new population is highly mobile and there is a significant positive balance of migration, but the migrants are also less likely to stay, particularly in some cities and oil and gas zones. The reasons for this are evident. In the initial stages of development the severe weather has a significant effect on the stability of the population. But the effect of this factor should not be overestimated: The example of a number of cities in the north (especially Noril'sk) proves that the unfavorable effect of natural conditions on population formation is surmountable. There are reliable ways of doing this: a reduction in the proportional amount of work outdoors, the mechanization and automation of labor processes, the more extensive use of organized forms of manpower recruitment (particularly from regions in the central belt of the RSFSR and Belorussia), the priority development of residential, cultural and consumer construction (according to "special northern" designs), the more compact layout of cities and settlements to reduce time spent outdoors in the cold, and a developed transportation network in cities and production areas to reduce the amount of time spent traveling to and from work and cultural and consumer establishments. Obviously, not all of these measures are equally suitable in various regions, but they can be effectively used on a much broader scale than at present. For example, much more comfortable house trailers could be used extensively, not only during the construction stage of development or in special resource exploitation assignments, but also in geological prospecting work (for example, highly comfortable prefabricated residences could be brought in by helicopter). This would require larger initial expenditures, but it would help to keep personnel in the region (including qualified personnel with local work experience) and heighten the efficiency of geological prospecting.

The lowest rate of personnel stability is found in regions characterized primarily by the construction and establishment of industrial facilities (where there is a prevalence of work in the open air with a relatively low level of mechanization and uncomfortable living conditions); here the number of new arrivals is only slightly in excess of the number of departures. The acute manpower shortage increases the volume of incomplete construction, lowers the use coefficient of equipment, disrupts construction schedules and so forth. The actual cost of construction exceeds the estimated cost of some facilities in the northern Ob' region by 30-40 percent or more, and around one-fourth of this rise in costs is connected with the manpower shortage and the discrepancy between the qualifications of this manpower and the requirements of construction. In cost terms, the negative effect of the low level of manpower stability considerably exceeds the expenditures needed to establish living and working conditions that would guarantee a stable labor force.

With a view to just these examples, we should note that when the manpower problem is being solved in the northern Ob' region, stability must be given priority over recruitment, and this is even more important in the earlier stages of development.

It should be stressed that the recruitment and stabilization of manpower are closely related. For example, most of the newcomers in the north are young people, generally without any skills: They usually undergo a brief training course and are then often used in unskilled work which does not correspond to the educational level of the young workers and their ideas about the prestige and appeal of different jobs.

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The resulting problem has several aspects. In the first place, the mechanism and structure of manpower recruitment must be improved. For example, among young workers the highest rate of stability is characteristic of those who arrive either as soon as they are discharged from the Soviet Army or within 3 years after this discharge. Apparently, this should be taken into consideration in the practice of organized recruitment. The stability of manpower will also be promoted by the further development of the system of vocational and technical personnel training in the Ob'-Irtys' region through a network of specialized state vocational training institutes. But there is also another side to the problem: At present the machine-labor ratio in new regions of gas and oil resource development is still inadequate. This means that there is still a significant demand for unskilled labor and, consequently, there are still prerequisites for a highly unstable labor force. Higher technical standards of development and the rating of work positions in each zone and center of development constitute one of the main ways of reducing personnel turnover.

In summation, we can stress the following.

1. In a short period of time, a large population and labor force have taken shape in the northern Ob' region, largely satisfying the local demand for manpower and ensuring the successful attainment of objectives connected with the creation of a major oil and gas production base in the region.
2. The basic settlement patterns of the northern Ob' region have now been established; production centers are being rapidly developed in oil and gas regions and the city of Surgut has become the production center of the entire northern Ob' zone.
3. The main tasks involved in supplying the region with manpower in the foreseeable future include the following: the consideration of regional peculiarities in the practice of manpower recruitment; the reduction of proportional expenditures of living labor in total social expenditures (higher technical standards of development and the rating of work positions, including jobs in the least developed regions); the stabilization of the labor force through the improvement of living and working conditions, specialized vocational and technical training for personnel, the improvement of territorial settlement patterns and the improvement of urban planning.

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